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ABSTRACT

Pioneering Partners for Educational Technology was created to enhance learning in K-12 classrooms by accelerating the use of educational technology. This document outlines the projects of the 1993 winning teams. The Illinois programs are: "A Travel Log Via Computer"; "Weatherization Audit Training for Teachers and Students"; and "Technology for Everybody's Kid." The Indiana programs are: "Dimensions of Diversity"; "Foreign Language Interactive Videodisc Project"; and "Technology Enhanced Curriculum Horizons Videoconference." The Michigan programs are: "Project Connect"; "Newberry's Telecommunications Link"; and "U.P. Stars." The Minnesota programs are: "Artists and Authors"; "More than a Field Trip: Real World Government Connections"; and "Anoka Quality System." The New York programs are: "Grades 9-12/Adult Education Vocational Training"; "Jumpstart the Classroom through Video Technology"; and "Engineering Studies." The Ohio programs are: "Ohio SEABASE Educational Network (OSEN)"; "Meeting Each Student's Needs through Technology"; and "Project Smart/West Technical High School." The Pennsylvania programs are: "6th Grade Yearbook & Bendersville Bugle"; "Carson Toy and Trinket Company"; and "Chapter 1 Laptop Computer for Home Use Program." Finally, the Wisconsin programs are: "Teaching Algebra in a Technology Intensive Environment"; "Music and Technology: A Two-Part Invention"; and "Success with At-Risk Students: Thematic Teaching with Technology." (JLB)

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Programs of 1993 Winning Teams

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Program overview

Pioneering Partners™ for Educational Technology was created to enhance learning in K-12 classrooms by accelerating the use of educational technology. The program spotlights 24 project ideas from Great Lakes states that are already using technology in creative ways. Participating states are: Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin.

The initiative focuses on:

- recognition
- professional development at a summer Partnership Summit
- coalition-building opportunities
- dissemination skills and connection to GreatLinks Net/Internet

As winning educators share their programs, and others replicate them, students will benefit. The program also influences another critical interest of Great Lakes Governors - workforce readiness. Areas that can prove they have good educational systems have an economic development edge. *Pioneering Partners* will help teachers across the region produce students who are ready to enter a more technology-oriented workforce.

Implemented in 1992 by the Council of Great Lakes Governors, the program is supported by GTE East.

About this booklet

Projects of the 1993 winning teams are outlined in the following narratives. Organized alphabetically by state, each synopsis includes the names of the team members and a telephone number so you can reach each team for further information.

For more about the *Pioneering Partners* program itself, including the 1992 winning Team descriptions, please write:

Pioneering Partners
Mail Code INAAAJZ
P.O. Box 407
Westfield, IN 46074

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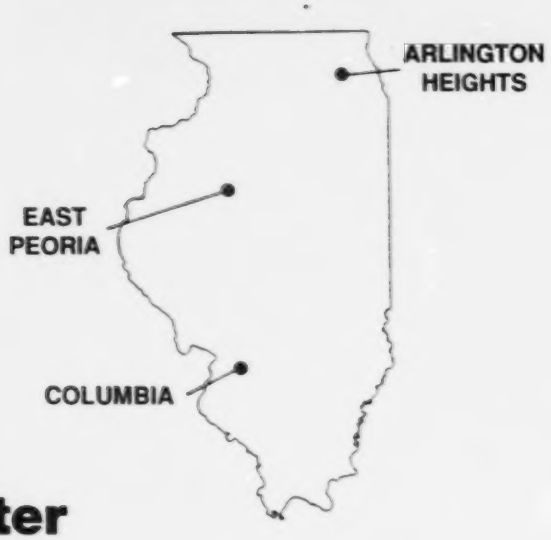

A Travel Log Via Computer

Team Members: Margaret Krizan, Computer Director-work phone: (618) 281-5353; Michael Kish, Principal; Glenda Bequette, K-4 Liaison

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Superintendent: Reverand Steven Humphrey

Schools Involved: Immaculate Conception School

Location: Columbia, Illinois

Eighth graders at the Immaculate Conception School (ICS) in Columbia, Illinois, find that international travel and understanding are as close as their computer keyboard. Students use computer technology to go beyond encyclopedia research of other nations by "traveling" abroad electronically.

Using PC Globe software and the "Carmen" series, the students simulate the entire travel process. Correspondence to a foreign embassy is followed by "purchase" of plane tickets and the "flight" to their destination.

Students document their travel, itemizing towns visited, food tasted, lodging enjoyed and other characteristics of the country and its citizens. Demographics such as age and income figures as well as infant mortality statistics are collected, too.

Students then assemble their journey details into travelogues - many as thick as 40-50 pages - using WordPerfect. Seventh graders do similar "trips" to sites throughout the United States on PC USA software.

The project is a culmination of 15 years of computer use at Immaculate Conception. As the only St. Louis Metro East Grade School with such a computer network program, Principal Mike Kish says the advantages include opening the world to understanding, preparing students for the 21st century and enhancing the entire educational process.

Plans call for ICS to spread the project to 41 grade and 3 high schools in the Belleville, Illinois, Diocese and share the information with public schools in their Educational Service Region #16 and to the State Technology fair.

As for student plans? They want to correspond directly with students from their selected nations and adopt technology pen pals.

Weatherization Audit Training for Teachers and Students

Team Members: Daniel Corray, Teacher-work phone: (309) 694-8305; David Kemper, Audio Visual Director; Keith Stone, Administrative Assistant; William Beckman, Teacher

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District(s): East Peoria District 309

Superintendent: Gordon Johnson

Schools Involved: East Peoria Community Schools

Location: East Peoria, Illinois

In traditional classes, the job description of students is to solve problems for which the teacher already has the answers. But in East Peoria Community High School, students on a special task team are searching for answers that no one yet knows.

Graphs, spreadsheets, charts and energy conservation are elements of the Weatherization Audit Training for Teachers and Students (WATTS) project at East Peoria, a project that spans the educational curriculum and motivates students in new ways.

"The project adds to the life-long learning of our students. It gets them away from the 'typical classroom,' and into teamwork. Students become cooperative learners, and everyone has something to contribute and learn - including me!" said Dan Corray, computer technology teacher.

Students learn how to work in groups and communicate effectively as well as how to apply textbook knowledge to a real situation: saving energy in their school. Through a three-phase process, English, science, math and computer technology students work to earn grant money from the state and put to use energy conservation recommendations of students.

First, teams of students, teachers, administrators and maintenance staff perform energy audits. "Students collect the power bills from our school as well as others in the district. They enter the data into the computer and compare our energy use per square foot with that of other schools`," said Corray.

"The key to the success of this project is motivation. Students see how the project applies to 'real life' and want it to succeed. The kids are so enthusiastic! I have had students borrow programs to work on the project at home. My previous students have even returned to offer suggestions for improving the project," he added.

East Peoria High School is currently in phase two of the WATTS project, and Corray emphasized the importance of the real-world experience. "Four students work with a team of engineers to identify energy conservation measures (EXM's). They get a temporary license to be 'energy engineers.'"

Based on the team recommendations, the state could issue a grant to pay for the design, material and installation of needed ECMs in East Peoria High School.

Eleven schools from three separate districts now participate in the project, but Corray has bigger plans. "Our goal is to spread the project statewide, and I'm looking at Pioneering Partners as a way to guide us."

Technology for Everybody's Kid

Team Members: Dr. Linda Babl, Practical Arts-Division Chair-work phone: (708) 808-5723; Mary Nellis, Computer Coordinator; Tricia Anderson, Instructional Assistant.

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District(s): Township High School District 214

Superintendent: Dr. Stephen Berry

Schools Involved: Wheeling High School

Location: Arlington Heights, Illinois

"We believe that the school for tomorrow includes a different breed of CAT."

That new breed can be found today in the Center for Applied Technology (CAT) at Wheeling High School in Wheeling, Illinois. And, Dr. Linda J. Babl, practical arts division chair, believes it "will guide the way for schools in the 21st century."

"The Center puts our students in a variety of learning situations, encouraging them to be problem-solvers. We don't want students to think of course work in separate categories, such as this is my 'math' class, this is my 'composition' class...everything is interconnected."

Wheeling's CAT uses state-of-the-art technology as its focus. The program is designed around the fact that students each have different learning styles. And, instructors are not referred to as teachers, but as facilitators.

Two years old, the CAT now resembles a research and development business center because it's organized into mini offices. It's equipped with personal computers, a laser disc, CD-ROM, printer, scanners, a wind tunnel, a structural stress analyzer, a satellite dish along with video and audio broadcasting studios.

Designed after a year of planning, the Center has a professional atmosphere where cooperative education student teams can work in an authentic setting.

Students work in teams of two, changing co-workers every six days. Throughout the school year, all of the students will partner with every other student in the program. "Students really learn that they have to build partnerships to complete a project," Babl said. "The interpersonal skills they develop will transfer to the real world. They learn that you don't have to necessarily be someone's best friend to complete a task. Much like in the workplace, the emphasis is on quality."

When beginning each module it's understood that everyone starts from the same place. "There are no prerequisites. You don't have to be in a 'talented' or 'gifted' program. What is expected is that everyone must contribute one hundred percent to the outcome," she said.

Students learn to transfer skills, knowledge and ability from one discipline to another without consciously thinking about it, she said.

Since the CAT has been part of Wheeling, the results have been positive. "Students are much more focused on their career goals. They've been exposed to so many more practical work dimensions than before including technological reading, writing and communications skills and applied physics, probability, statistics and logic. And, graduating students are asking more probing questions when choosing a college or university. Instead of asking 'do you have a computer lab?' they are now asking where, when, and what varieties are available," Babl said.

Increased attendance, increased pride in the school, gender equity of female enrollment within scientific and technology-based classes and more business and professional organizations supporting CAT enhancement are other outcomes she attributes to the CAT.

Where does the Center for Applied Technology fit into the future? "It will be a hub and resource center for what's happening at Wheeling High. It's a whole new spirit of learning," she declared.

Indiana

Dimensions of Diversity

Team Members: Karen Layton, Curriculum Specialist, Fort Wayne Community School Corp. work phone: (219) 425-7505; Rick Davis, Media Teacher, Northrop High School; Glenda Spiece, Learning Technology Specialist, Fort Wayne Community School Corp.

GreatLinks Account: klayton@ greatlinks.cic.net

District(s): Fort Wayne Community School Corporation

Superintendent: Dr. William Coats

Schools Involved: Elementary, middle and high schools in the Northrop and Snider High School areas.

Location: Fort Wayne, Indiana

History, cultural heritage, diversity, research, summer school, computers and technology - on the surface, they're terms that don't necessarily fit. How they were blended into a project of unique proportions is the story of a team of educators in Fort Wayne Community Schools.

It's a success story which sprang from leveraging an opportunity to incorporate Apple MacIntosh computers and other multi-media technologies into a curricula project. The collaboration between schools and the community integrates various teaching and learning styles with technologies.

"Dimensions in Diversity" began as a summer school project involving one class of students from 4th grade through 10th. Teachers facilitated and guided 50 youngsters through research into the heritage of their families and the diversity of eight founding cultures for the Fort Wayne area. Students ranged from "special need," through average-achiever to "talented and gifted."

Presented not as a computer class, but one to enrich research, interviewing, and writing techniques about history and cultural diversity, the class tool was technology. Investigating personal cultural history through family interviews and trips to the genealogy section for the Allen County Public Library, interviewing Fort Wayne's resident historian and exposing students to role models and information about various cultures, became the foundation for learning and skills enhancement.

Eager and creative students applied their research in innovative ways. Because lap-top computers, tape recorders and video cameras were used in interviews and during research, organization and data presentation, the final presentations were as varied as was the student mix.

At summer's end, students and facilitators met to ask "what next?" Ten of the original 50 continued meeting during the school year - but not during school hours. Now feeling truly self-directed, the students chose to meet two Saturday mornings each month and every Wednesday after school. They picked a new focus: the heritage and role of Native Americans in Fort Wayne's history. Their goal: a CD ROM presentation.

Foreign Language Interactive Videodisc Project

Team Members: Barbara Underwood, Assistant Superintendent - work phone: (317) 759-8230; Karen Brammer, Spanish/English Teacher; Rocco Fuschetto, Spanish Teacher.

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District(s): Mt. Pleasant Township Community School Corp.

Superintendent: Jerome Secttor

Schools Involved: Yorktown High School

Location: Yorktown, Indiana

Remember what is was like to study a foreign language in school? Even if you had a burning desire to become fluent in a second language, the presentation was less-than-exciting. Chances are, the learning tools were a textbook, some hand-outs, and, if you were lucky, technology from yesteryear: a filmstrip or recording of phrases and sentences.

Imagine instead, watching and listening to conversations in Spanish while viewing Spanish-speaking teens spending a day wind-surfing. From your wind-surfing experience, you turn to a computer terminal and work on interactive exercises to reinforce the video dramatizations. Better than a black-and-white photo in a textbook and a couple of worksheets? You bet!

If you could return to the classroom to learn a foreign-language today at Yorktown High School, Yorktown, Indiana, that's precisely what you'd experience! The creative integration and application of today's technology by a team of Yorktown educators makes the learning process the next best thing to living in a foreign country.

Called "The Foreign Language Interactive Videodisc (IVD)," the project uses a laser disc and computers to bring authentic language to students. Lessons include situational video segments filmed in native-language countries, presenting real-life situations and challenging students to relate all learning activities to information in the videos.

Teachers tie commercially available video images with foreign language lessons created by the U.S. Air Force Academy. After viewing video segments, students select from a variety of computer-based activities to reinforce the video presentation. Using computers, students work with scrambled sentences or scrambled words; view an entire dialogue or phrases and individual words in the translated or target language. Then, they can self-check for skill mastery.

The IVD program, now in its third year, is self-paced and self-sequenced, and engages students in learning. The attraction of computers and videos, commonplace in the lives of high school children today, has had a big impact on Yorktown High School's foreign language program.

A higher percentage of students there now continue with foreign language studies beyond minimum requirements, than under the old method. And, the foreign language laboratory is filled with students eagerly learning another language through experience.

If adoption of a concept by other educators is a measure of success, IVD meets that test. To date, the program has been adopted by 42 foreign-language teachers at 12 additional schools.

Technology Enhanced Curriculum Horizons Videoconference

Team Members: Callie Marksbary, Elementary Teacher - work phone: (317) 449-3860; Janice Young, Elementary Teacher; Lee Foerster, Director Media Services.

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District(s): Lafayette School Corporation

Superintendent: Robert Myers

Schools Involved: Vinton Elementary and Glen Acres Elementary

Location: Lafayette, Indiana

High performance companies of the future will be clamoring for workers with extensive communications skills, predicts a recent study by Carnegie-Mellon University. Thanks to a video tool used for the last six years in ten Lafayette elementary schools, youngsters from that middle American community will be well prepared for tomorrow.

Collaborating with the local cable television company, teachers at Vinton Elementary and Glen Acres Elementary began linking their students with "Smokey the Bear," coaches from nearby Purdue University, street musicians, state and local officials, authors, and a magician who promotes reading, for example.

Using simple videoconferencing equipment and imagination and persistence in engaging community partners, the educator team has created a learning tool that crosses all curricula and has doubled in frequency because of its popularity with students and teachers.

The 30 minute programs have helped students improve reading, writing, speaking and listening skills as they prepare questions, practice interviewing and write thank-you letters to guests, say teachers. Another valued skill of the future - teamwork - is also practiced as students brainstorm about questions before the twice a month interviews.

Soon, students learn to frame "higher level questions," a step toward critical thinking - so vital in the workplace.

The simple technology is the equivalent of "field trips" without the hassle of transportation and lost travel time for students, and with other significant benefits. Programs impact a broader audience than just the classroom. They are rebroadcast as part of the local cable station's regular programming so that experts from an array of experiences and walks of life can be "brought" to learners who don't happen to be in schools. Capturing the entire process in classroom journals is another way to extend the experience beyond the moment.

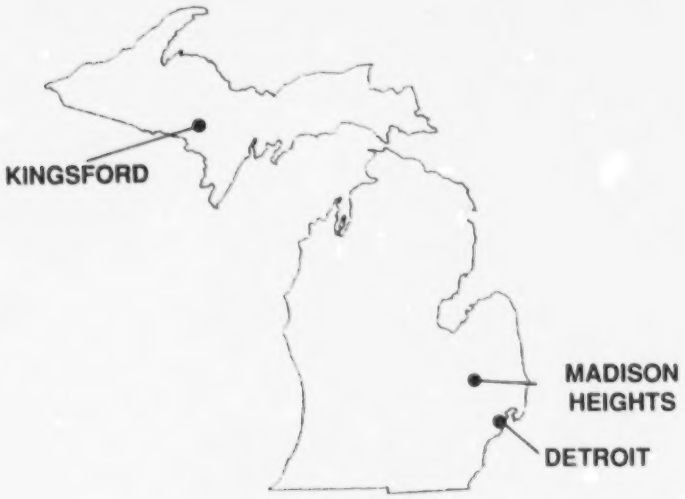
Teacher workshops have taken the fear out of using the technology. Information on how to fit the videoconference into curriculum; "hands-on" instructions for setting up the audioconference and videoconference equipment; brainstorming sessions for questions and debriefing; and evaluation materials are available.

The training has paid off. What was once the equivalent of a second full-time job for the project leader to plan and organize, now virtually "produces itself" with teachers calling to advise her of what concept they're developing next.

Though most transmissions are one-way, with the studio guest unable to see students, a two-way effort was once used with John Mutz, former Lt. Governor of Indiana and now an executive with Lilly Endowment, a major philanthropic foundation. The team believes two-way is the future of the program.

"I can't get over the growth of this project," declared Callie Marksbary, team leader. "For many of our teachers, it has now become a 'given'...something that you do as a matter of course to provide a good education for your students."

Michigan



Project Connect

Team Members: Dean Covert, Science/Instructional Technology - work phone: (313) 589-1990; James McCann, Superintendent; Robert Bess, Teacher.

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District(s): The Lamphere Schools

Superintendent: James McCann

Schools Involved: Page Middle School

Location: Madison Heights, Michigan

It's been called a national town hall and a "world tour" on the electronic frontier. It's the Internet, and it's power and reach are making students and teachers at Page Middle School in Madison Heights, Michigan, learn and work differently than ever before.

Through Project Connect, students and teachers can literally span the globe. Project Connect uses Internet, a network able to link computers to data bases anywhere. Students and teachers can transfer files on topics they're researching, allowing them to investigate virtually unlimited resources. The control and flexibility for reaching people and information is a valuable tool.

Project Connect began one and half years ago through MERIT Network, a non-profit agency which manages involvement of affiliate computer networks in Michigan and connects them to networks outside the state.

The innovation has turned passive students into active learners, according to Dean Covert, instructional technology specialist at Lamphere Schools.

Through Internet, one student began "talking" with medical researchers at the University of Michigan about organ transplants, an experience which Marcia Young, a classroom teacher, credits for giving the student a "new attitude toward school and toward learning."

Robert Bess and the teacher team at Page Middle School are also training a group of 7th graders to be leaders in using Internet, creating a "multiplier" effect when they pass on their knowledge.

Besides allowing access to large volumes of information, Internet lets students communicate with other students throughout the United States or the world by electronic mail.

Helping students work in teams and paving the way for an easier transition to the 21st century workforce are other benefits teachers and parents at Page Middle School have observed.

The Lamphere School District vision is to invite students, community members and staff to use a dial-in service from homes and businesses next year. The offsite access will take the program to a new level of value, and expand the worldwide web of 10 million people who already connect globally through technology.

Newberry's Telecommunications Link

Team Members: Wilhelmina Quick, Principal - work phone: (313) 494-2484; Casimer Badynee,Teacher; Velma Walker, Director of Advance Technology; Cecily Wilson, Teacher

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District(s): Detroit Public Schools

Superintendent: Deborah M. McGriff

Schools Involved: Newberry Elementary School

Location: Detroit, Michigan

The days when primary education focused on the "3 R's" are not gone - they've just been recast from chalk and blackboard exercises to keyboard exercises, in some classrooms.

At the John S. Newberry Elementary School in Detroit, Michigan, some 540 students study "readin', 'riting and 'rithmetic" in a "hands-on," interactive environment, with the help of computers.

Newberry uses four programs to introduce students to computer-based technology:

- *Kindergarten and first grade students practice phonetic and reading skills in a program called "Writing to Read" (WTR). A separate classroom with several learning stations is the setting.*
- *"Writing to Write" (WTW) is for students in grades two through five who work in groups using computers, work cards, work journals and reading books. Writing skills are strengthened with computers through drafting, planning and revising.*
- *Teaching and Learning With Computers (TLC) integrates curriculum content and computers. Basic reading and language art skills are taught, emphasizing reading comprehension and writing skills.*
- *Students share information with other classrooms in the city and across the country through Telecommunications in Education for the Advancement of Mathematics and Science (TEAMS). Students collaborate in preparing, sharing and discussing data in math and science.*

"These projects have changed the climate of the school," said Wilhelmina Quick, principal. "Test scores have gone up and it's made an impact on discipline, too. The programs make learning interesting and enjoyable," said Quick.

The TEAMS program has helped students on the Michigan Education Assessment Program (MEAP) a standard assessment test for fourth, seventh and tenth grade students in Michigan. Science scores increased from the 47th percentile to the 87th percentile. And 94 percent of Newberry's fourth grade students scored in the 90th percentile in math.

Students are benefitting from these programs in many ways other than improved test scores. For example, the WTW program has helped students become more proficient writers, including a fourth grade class which writes and publishes a monthly newsletter.

First graders in the program have begun writing sentences and stories before other first grade student without computer skills.

Students in the TLC program receive reinforcement in spelling, math, science and language arts on computers and continue to increase their grades in all academic subjects.

Plans include expanding the focus of the programs toward a global society and global thinking.

U.P. Stars

Team Members: Mary L. Brien, School Improvement Coordinator - work phone: (906) 779-2960; Dolores Benjamin, Co-director-Starlab Project; Victoria Tomasoski, Teacher.

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District(s): Dickinson-Iron Intermediate

Superintendent: Richard Jacobsen

Schools Involved: Dickinson-Iron Intermediate School District is a consortium of six public and two private schools in the Dickinson and Iron County areas.

Location: Kingsford, Michigan

Students in the Dickinson-Iron Intermediate School District are looking at the sciences in a whole new light, thanks to an innovative teaching project called U.P. STARS (Science Teaching Through its Astronomical Roots.)

The project teaches students, "to learn science by doing science," and is designed to develop relationships between earth science and subjects such as art, mathematics and social studies.

Central to U.P. STARS is STARLAB, a portable, inflatable planetarium which brings the "space age" to rural communities.

Created by scientists at the Harvard School of Education, STARLAB consists of an inflatable dome, projector and a variety of cylinders which project mythical constellations, global land depictions and global tectonics.

Student response has been excellent, according to Mary Brien, school improvement coordinator and co-director of STARLAB. "Students learn better because they experience hands-on activity which reinforces concepts they are introduced to in textbooks," said Brien.

In one experiment students place markings on the planetarium wall where they think the sun and moon will rise and set, then watch the results of their predictions when the northern starfield is inserted and projected onto the wall.

Students also have a physical education unit where they experience weightlessness using three underwater "space stations" submerged in a swimming pool. They perform various tasks in the simulated weightless environment.

STARLAB saves the district time and money because it's mobile, offering rural northern communities opportunities to study astronomy without driving long distances.

During "Astronomy Week" seventh and eighth grade students apply all the skills they have learned in the various curricular areas to a colonization activity of another planet. The week culminates with a Night Sky Party where teachers, students and parents use student-created telescopes to identify constellations.

Minnesota

Artists and Authors

Team Members: Mark Geihl, Junior High Technology Coordinator - work phone: (218) 847-9228; Les Perry, Principal; Kent Mollberg, Teacher

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District(s): Detroit Lakes

Superintendent: Robert Melick

Schools Involved: Detroit Lakes Junior High School

Location: Detroit Lakes, Minnesota

Few of us are likely to run across our names in the card catalogue of our local library. But if you're a junior high school student in Detroit Lakes, Minnesota, and you're enrolled in an elective called "Artists and Authors," you will find your name on your work alongside that of Ernest Hemingway and Shakespeare, when you browse the book shelves there.

Technology, language arts and art courses are combined in a special class where students write, illustrate and publish their own books as well as create multi-media video presentations. One copy of the student book is put in the school library and another graces the student's own collection at home.

Using computers to word process and desktop publishing software to create page designs, the students "left the class with technological and writing skills that they never thought they were capable of obtaining," said Mark Geihl, coordinator.

Though the class ranges from honor students to those at risk of dropping out and others mainstreamed for emotional and behavioral disturbances, the students each achieved a high level of success," Geihl stated.

Motivating the students from outside the school are professionals who visit to give advice and hints to the young authors. A retired artist and editorial cartoonist, a local journalist and graphic artist, and a local book binder each volunteered to consult with students.

Rather than send the manuscripts away to a large publishing house, the team persuaded a local bookbinder to bind the student work by hand, demonstrating the age old technique in the process.

In the third phase of the 18 week course students generate multi-media presentations which include electronically colored illustrations, planned transitions and digital sound. By integrating both products into the elementary reading curriculum, the class makes real the value that students can and should give something back to their communities - a value that's alive and well in Detroit Lakes where "Artists and Authors" is supported by more than 20 individuals and many businesses and groups outside the school walls.

More than a Field Trip: Real World Government Connections

Team Members: Judy Hoffman, Teacher - work phone: (612) 928-6706; Shirley Kratochvil, Specialist; Jim Rhodes, State Representative

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District(s): St. Louis Park Public School

Superintendent: Carl Holmstrom

Schools Involved: Aquila, Cedar Manor and Susan Lindgren

Location: St. Louis Park, Minnesota

The fact that a newly-elected Minnesota state representative had behind-the-scenes researchers who helped him move his ideas into bills is no novelty. But the fact that some of those "researchers" were third-graders is where the story gets interesting.

Not satisfied with the traditional field trip to the State Capitol building, teacher Judy Hoffman and technology specialist Shirley Kratochvil put their heads together to create a special partnership with State Representative Jim Rhodes, and a deeper, lasting experience for their classes.

The result was a project which not only personalized lawmaking for students, but also helped them see technology as a useful tool that can make a difference in education, rather than merely a gimmick, explained Hoffman.

A carjacking bill was the focal point of the activity, and the technology included fax machines, electronic mail, digital cameras and cellular phones.

Students did visit the State House to meet their state representative, but they didn't end the experience with a written report - they extended it with later contacts through technology.

"They lived Representative Rhodes' frustrations with the politics of being a freshman lawmaker. And, they really got into the process themselves, gathering and retrieving data for him, and helping him reformat his bill for a larger constituency," explained Kratochvil.

The students needed a practical illustration of the steps in passing a bill into law, and Representative Rhodes provided that through his bill, and his willingness to stay in touch with the students.

A pre and post assessment of the classes showed that invested learning, meaningful audiences, personalization and frequent small contacts contributed to a deeper understanding of lawmaking for the children, Hoffman and Kratochvil said.

What did Rhodes get? The educators say it would be a real bonus if the closer look he got to the impact of technology on students finds it way into Minnesota public policy someday.

Anoka Quality System

Team Members: Bill Mittlefehldt, Teacher - work phone: (612) 422-5741; Randy Johnson, Director.

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District(s): Anoka-Hennepin D. 11

Superintendent: Douglas Otto

Schools Involved: Anoka High School

Location: Anoka, Minnesota

Helping city fathers plan for the year 2010...testifying before the U.S. Congress about deficit reduction...piloting a project for the state's water protection initiative ...helping a local businessman implement quality training at his lumberyard...

Those activities could be considered the "homework" of some students at Anoka High School in Anoka, Minnesota. But it's homework that doesn't prompt the typical grumbling from students that traditional assignments do, according to social studies teacher Bill Middlefehldt.

The program of learning activities is called "The Anoka Quality System," and its creators believe it's having a profound impact not only on student learning, but on rekindling a sense of community by tapping into the combined power of technology, people and creativity.

Grown from an extensive set of relationships in the community, the program began two years ago. While writing a computer program to implement quality in schools, Mittlefehldt began working with Randy Johnson, a community education director of development and a member of the Anoka County Quality Council.

Together, they developed a model for using the expertise of business professional to work with senior honors students studying the theory and application of quality improvements. All of the training was done after school or in the evenings.

Its origin can also be traced to a community planning effort to anticipate the future in the year 2010. Students at Anoka High School earned credits in class and community service hours for participating in the taskforce. For the last two years, students have used the same database used by the state legislature to help the city plan its future. They also make formal presentations to the City Council.

During the second semester, students create videos of various elements of the quality story. The productions go to business partners, the city and state Quality Councils and will be broadcast statewide through the business network.

Through a new telecommunications system, anyone can dial into the school's electronic bulletin board system to learn more about quality in business, city operations, education, the environment, and health care, for example.

"This program has changed my students' lives," declared Mittlefehldt. "They have used the training to earn thousands of scholarship dollars. They have used it to get jobs. They have used it to train their managers, and the managers were promoted. They have used the training to improve teamwork where they were employed. They have used it to add quality to our school. Eventually, they will use it to add quality to our community and to the future," he concluded.

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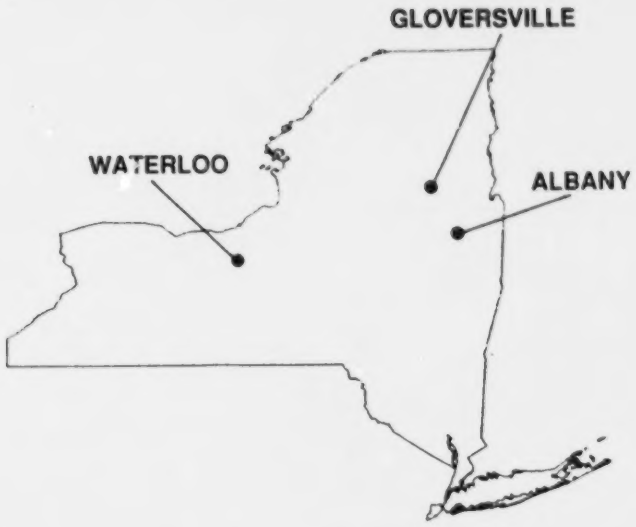
New York



Grades 9-12/Adult Education
Vocational Training

Team Members: Randall Gilbert, Principal - work phone: (518) 725-0671; David Berger, Coordinator, Adult Education; James Passero, Telephone Maintenance.

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District(s): Gloversville Enlarged SD

Superintendent: Donald Lomanto

Schools Involved: Gloversville Adult Education and Gloversville High School

Location: Gloversville, New York

"Technology is no longer a word that just fits in a crossword puzzle," says Gloversville team member David Berger. "It's a word that fits in daytime, evening and adult education curriculum."

Two years ago, Berger attended a conference in Albany and that's when he began to realize the importance of computer technology in the classroom.

The result was an adult education program that incorporates the newest technology into the needs of the community, a program that has also been used at the local high schools.

Working with the school district and local unions, Berger set up computer classes to teach the adult learner everything from English as a second language and GED to Lotus and Pagemaker, software for data spreadsheets and page layouts. There are 37 diverse course offerings. Berger said Gloversville High School has "co-mingled the adult education program to produce better 9-12 students and to fill the needs of adult learners."

"It's really a marriage," said high school principal Randall Gilbert. "If we're going to produce the kind of worker that's needed in industry today, we must know what industry expects."

What pleases the community most, is that all of the funding for the program came from state and federal grants.

Adults say the computer age sort of missed their generation, and this is their chance to reenter the game. Students like the program because it connects them with the needs of the 21st Century workforce. "The problem is really a lifelong learning link," Gilbert said. "We're taking in students, displaced workers, and those who are still employed. The potential is unlimited."

Jumpstart the Classroom Through Video Technology

Team Members: Gary Cimorelli, Communications Specialist - work phone: (518) 785-5511; Rose Jackson, Principal; John DeGuardi, Teacher; Stephen Swinton, Science Supervisor.

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District(s): North Colonie School District

Superintendent: Marya Levenson

Schools Involved: Blue Creek Elementary, Shaker High School

Location: Newtonville, New York

With today's focus on computers, video could be called the forgotten technology. But for students in the North Colonie School District it is now an exciting way to learn.

Students are learning the basics of math, history and government at the same time they are producing a video that is being used as a tool for others. In their local town, students put together a program on the uses of math in the community. This involved interviewing people who used math as a part of their job. It involved parents, students and community residents, bringing everyone around them into the project. The finished product is used as an instructional piece for math classes in the district.

When students participated in a local government day, they videotaped that experience too. Again, the finished product found a home. The town is using the production to show to other student visitors on government day.

When it was time for a lesson on the Spanish-American War, that too, became a full-scale production. Once again, the finished piece is being used as a learning tool for other students.

Teachers involved with the program say not only do students get totally involved in the project, but their retention of information dramatically improved. That is the result of repetition through storyboarding, script writing, editing and filming the program.

One of the biggest program impacts is how it can change the life of a student. "We had a student with a learning disability, who went through a total metamorphosis when we put him behind a video camera," said team leader Gary Cimorelli. "He showed students in the upper level classes how to use the camera. When he discovered his new talents, he really began to shine." Cimorelli added, "That is one of the most exciting aspects of this project: seeing children discover new talents."

Cimorelli said the project has also achieved what many thought was impossible..."getting students to spend free time and evenings doing school work, without being told to!"

Engineering Studies

Team Members: John Patti, Team Leader - work phone: (315) 539-1500, ext. 543; Doug Barg, Instructor; Ray Schussler, Engineer and Member of Board of Education

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District(s): Waterloo Central School District

Superintendent: Michael Hunsinger

Schools Involved: Waterloo School and coalition members at Seneca Falls Central School and Romulus Central School

Location: Waterloo, New York

Using the fundamentals of Dr. W. Edward Deming's Total Quality Management and team dynamics, the Waterloo Central School District is working with several partners to increase the number and quality of engineers and scientists in America.

Team Leader John Patti says, "We give our high school students a head start for a quality college education. Engineering Studies will help rejuvenate America's economy and make us a more competitive nation by preparing young people in critical technical fields."

The "hands-on" program focuses on concepts learned in advanced math, science, social studies and English, applied with added technical skills to case studies, lab activities and problem-solving seminars at local industries.

"For too many years, high schools have been sending students to engineering schools with little background in applications and true technical understanding, " Patti said. The interdisciplinary-outcomes approach at Waterloo offers "just-in-time" experiences to make the connections needed for true learning.

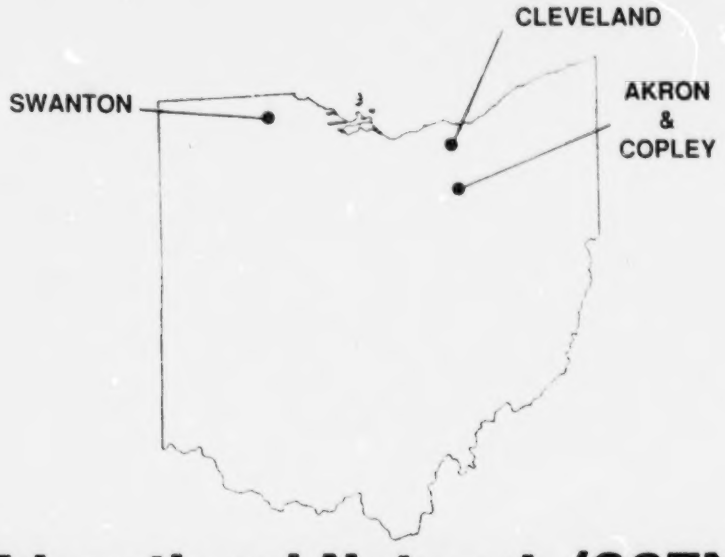
Experts believe that a period of planned preparation in high school will decrease the number of students who drop out of college programs and/or change their majors.

Waterloo's program incorporates selected high school staff, volunteer professors from Rochester Institute of Technology and Syracuse University and engineers from five local industries.

Practicing engineers mentor and guide high school students, a practice used in the Far East. Already, it has increased interest in engineering and scientific professions, particularly among females.

Funding and program development over the next two years will establish satellite engineering studies centers for 26 school districts comprising the Wayne-Finger Lakes Board of Cooperative Educational Services.

Ohio



Ohio SEABASE Educational Network (OSEN)

Team Members: John Litzel, Superintendent - work phone: (216) 668-3201; Christine Johnson, Teacher; Carolyn Staudt, Teacher

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District(s): Akron Public Schools and Copley-Fairlawn City Schools

Schools Involved: Central-Hower and Copley High Schools

Location: Akron, Ohio and Copley, Ohio

For one week students from Copley and Central-Hower High Schools combine their skills to survive in a futuristic underwater city isolated from civilization. They explore the wonders of the ocean with various experiments and are left to conquer unforeseen challenges with the original equipment carried to their "city." Improvising takes on new meaning and the importance of team work becomes apparent through the most valuable experience possible - "real life."

Project SEABASE begins with lab experiments and scientific investigations that the students participate in all year. That work culminates in the final project, an under-the-sea simulation where the students are self-contained for one week. Left to the underwater world they have studied all year, students continue their research in a little community that they form and are trained to run. They apply the teamwork skills they have learned to function in a successful society. "In the beginning, students were reluctant to share their ideas and results. The technology brought them together through mutual understanding," explained Christine Johnson, Central-Hower High School science teacher.

"They had formulated ideas about each other before they met," said Johnson, " and when they finally did come together they came to appreciate and respect each other. It was a good experience both socially and academically."

SEABASE succeeded because students took the initiative to be responsible for their own education. SEABASE is more than a class. It is a great learning experience..."a practical application they can use for life," Johnson concluded.

Meeting Each Student's Needs Through Technology

Team Members: Daniel Holden, Assistant Superintendent - work phone: (419) 826-7085; Frank Blatnik, Teacher; Steven Brehmer, Teacher

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District(s): Swanton Local Schools

Superintendent: Roger Barnes

Schools Involved: Swanton High School

Location: Swanton, Ohio

In the "traditional" classroom, the responsibility for learning rests with the teacher. At Swanton High School in Swanton, Ohio, that tradition has been turned around. Students there take responsibility for their own education and their different learning needs are met through various media of communication and the most up-to-date technology available.

In this project, students are no longer passive learners, but very active. They participate in lab activities; use computers, electronic mail and laser discs; and are exposed to distance learning via satellite. The approach gives schoolwork new and exciting avenues and challenges the student's problem-solving and decision-making skills.

Getting students to commit to learning is the overriding goal at Swanton. Students were split into small groups to progress at their own rate. Computerized testing and videotaped lectures allow teachers more time for individualized attention to the students.

"The average student is more responsible than they are given credit for and they want to challenge themselves rather than being forced to learn," said teacher Frank Blatnik.

Before this method was used, 28 percent of the freshman failed one or more courses. This year the failure rate is less than 1 percent. "Not only are students learning, but they feel better about themselves and the grades they are achieving," said Blatnik.

Cooperative learning has brought out "qualities in the students that you want to see in society. They are now more willing to help each other because they find out that not everyone is equal. However, they have compassion for those that are behind," said Blatnik.

One student in the program took advantage of the ability to progress at her own rate. She finished all of her coursework in April, nearly two months early. According to Blatnik, she was an excellent student, but was concerned about her academic ability. Now, she loves the program and appreciates "the idea that I can take on my own responsibility for my schoolwork. I enjoy working at my own speed and finding out what I can really do."

Swanton High School is preparing students for the world of advanced technology and teaching them to think critically through it's program, "Meeting Each Students Needs Through Technology."

Project Smart/West Technical High School

Team Members: Craig Dorn, Youth Appreticeship Coordinator - work phone: (216) 634-2242; Carmine Romano, Teacher; Louise Vertal, Teacher

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District(s): Cleveland Public Schools

Superintendent: Dr. Sammie Campbell Parrish

School Involved: West Technical High School

Location: Cleveland, Ohio

Going to school for students in Project SMART is an opportunity to participate in a family environment through technology.

Students begin with the basic concepts of technology, then observe applications at high-tech manufacturing sites. They advance with more training and are assigned to observe or shadow someone working in their chosen fieid. In their last year, the students are placed in an apprenticeship to establish real-life experience.

Students involved in Project SMART have the same teachers all day who work as a unit to create a family environment for them. The teacher team meets daily to discuss strategies to incorporate education and technology. Their goals are to constantly find new ways of teaching, to get students to participate more, and help them develop a base of knowledge so they can solve problems and better understand the relationship of their academic subjects.

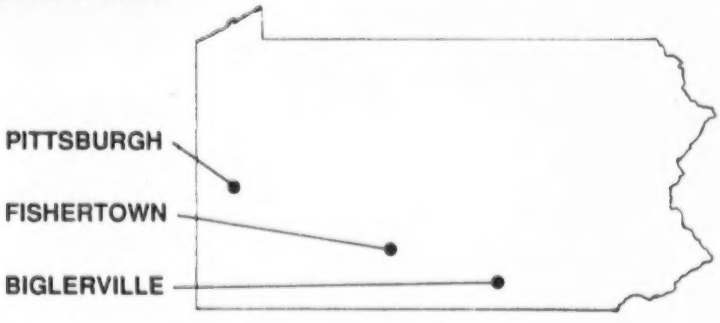
The SMART program has many benefits to participating students at West Technical High School. Their state-of-the-art lab combines computers and academics to allow students to understand basic computer functions and integrate the latest technology with their school work.

"Students in the SMART program are excited about the family environment that has evolved," said apprenticeship coordinator Craig Dorn. Attendance of those in the program is up 15 percent and Dorn credits the improvement to "pride."

Marco, a student in SMART, was asked what the program means to him. "I feel special, and I think that the teachers care more because they listen," said Marco. "Being in SMART allows me to learn more about my potential career," he added.

Dorn said support of SMART by business and community leaders is a big factor in the program's success. "I am amazed at the willingness of absolutely everyone to contribute to our efforts," Dorn said. "Everyone from the local crisis center to the president of the largest corporation in the city call me and say 'I want to help. Tell me what I can do.'"

Pennsylvania



6th Grade Yearbook & Bendersville Bugle

Team Members: Ronald Ebbert, Principal - work phone: (717) 677-7191; Todd Fritz, Teacher; Dawn Garner, Special Education Teacher; Martha Heintzelman, Computer/ Media Assistant.

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District(s): Upper Adams

Superintendent: Dr. Robert G. Witten

Schools Involved: Bendersville Elementary

Location: Biglerville, Pennsylvania

Trading in Royal typewriters for Apple computers, Bendersville Elementary students and teachers publish a 6th grade yearbook and a school newspaper.

Students demonstrate mastery of both oral and written communications skills by conducting interviews, writing articles, proofreading and correcting written work, typing final copies and organizing student work into a final published format.

The classroom teacher instructs in communication skills, while the art teacher assists with graphics and photography. Using a word processing program, the computer/ media assistant readies work for final production.

From outside the school, professionals at the local printing firm and newspaper "consult" to help students polish their work.

Plans to expand the project and upgrade the publications include students using a scanner to digitize artwork, and a "photoman" camera that directly digitizes images onto the computer.

Guest speakers from the publishing and photography fields are planned, to continue the school's direct link with community experts in this practical student project.

Carson Toy and Trinket Company

Team Members: Tim Vermillion, Teacher - work phone: (412) 934-6036; Jim Armstrong, Teacher; Richard Hasson, Teacher; Greg Waslo IV, Teacher.

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District(s): North Allegheny

Superintendent: Larry Bozzomo

School Involved: Carson Middle School and Marshall Middle School

Location: Pittsburgh, Pennsylvania

It may look like "child's play," but what's going on in Carson Middle School's unified arts program is actually more like "big business."

Students in the 12-week course run their own corporation called the "Carson Toy and Trinket Company." Though their products may be miniature wooden jeeps, train and gumball dispensers, their work is no game.

The students learn first-hand about technology by taking a creative idea and developing it into a finished product. "Students get a look at industrial development from the concept to the fruition stage," the staff explained.

In the first six weeks, concepts and terminology are taught. Then, students begin mechanical drawings of the toys, first manually, then at the computer-aided drafting system. To manage their time, they prepare detailed spreadsheets and set up schedules.

Leaving the white collar world, the students then become shop foremen, machine operators, and quality control staff.

They use basic hand tools and apply a modern finish using a brush application. Safety is instilled with proper dress, tool use and material handling all being taught.

Communication skills needed to write a resume, fill out an application, and interview for a job are also covered.

The teacher-team who created the program emphasizes teamwork in the "company" as well, encouraging students to settle their own disputes and even sign a contract between managers and assembly workers.

Plans are to expand the program to a five-year effort including the ninth and tenth grades, combining it with the robotics program that already exists.

Chapter I Laptop Computer for Home Use Program

Team Members: Michael Stefanick, Chapter I Instructor - work phone: (814) 839-4195; Karen Feathers, Chapter I Instructor; Robert Olson, Chapter I Instructor; and, Linda Fisher, Chapter I Instructor.

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District(s): Chestnut Ridge

Superintendent: Dr. Larry Giovacchini

School Involved: Central Elementary, Chestnut Ridge Middle School and New Paris Elementary

Location: Fishertown, Pennsylvania

When Chapter I students in the Chestnut Ridge Schools have homework, it isn't usually carried from school in a simple book bag.

The students in grades K-8 are offered laptop computers to take home, giving the youngsters who have remedial instruction in reading and math outside of class, an opportunity to also keep up with technology.

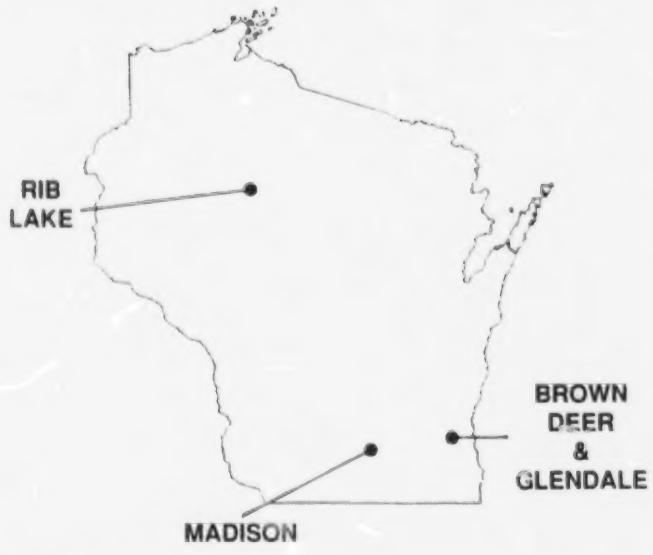
Parents can sign out the computers for three consecutive days and must pick up and return them. That way, parents know what the child is learning and they get a demonstration of the correct use of the computer and recommended programs for the homework.

Students are "very excited about the program and their motivation is high," according to teacher Karen Feathers.

For one boy in particular, the program has changed his attitude toward school. "Before the computers, this child showed very little interest in school and displayed little motivation to learn. But now, he's much more involved with his schoolwork and the computers have played a part in that change," she said.

To help students learn about local business and industry in the community, teachers plan to encourage businesses to "log on" to the computers and communicate with the students.

Wisconsin



Teaching Algebra in a Technology Intensive Environment

Team Members: Mark Priniski, Teacher - work phone: (715) 427-3320; Dan Boxx, Principal: Michael Dishnow, Guidance Couselor.

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District(s): Rib Lake School District

Superintendent: Ramon Parks

Schools Involved: Rib Lake High School, Rib Lake Middle School

Location: Rib Lake, Wisconsin

Mathematics students at Rib Lake High School in Rib Lake, Wisconsin, have the equation for making algebra come alive - Rib Lake's Computer Intensive Algebra program.

Through the program students are given the opportunity to learn algebra as a means of problem-solving, using mathematical modeling. The class is offered in grades 8-9.

With traditional algebra curriculum, emphasis is on manipulating symbols and equations. Using computers, Rib Lake students concentrate on applications of algebra without spending large amounts of time solving equations.

Computers are used to graph, generate tables, fit curves and manipulate symbols. The classroom has a lab of 15 MacIntosh computers which are networked to share the software used in mathematical modeling.

Students get a clearer understanding of how algebra is used in real life situations. While working on group models, they learn to read, write and talk with mathematical concepts in mind. Best of all, students and teachers are both caught up in the excitement. "This is the most fun I've had teaching in a long time," said Mark Priniski, math/computer teacher. Students actually discuss mathematics. You usually do not hear talk about math. An answer is not just a number...it fits into a situation. They tend to enjoy class more and take more responsibility."

Well-supported by the Rib Lake community, the innovation has prompted frequent visits from administrators, parents, teachers and school board members. A presentation on the Rib Lake program was included at the recent Computer Intensive Mathematics Workshop in Chicago.

Through Pioneering Partners, the Rib Lake team looks forward to sharing their "equation for success" with other educators throughout the Great Lakes region.

Music and Technology: A Two-Part Invention

Team Members: Nick White, Teacher - work phone: (414) 351-8172; Rebecca Kodet, Administrator/Technology Coordinator

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District(s): Brown Deer and Nicolet School Districts

Superintendent: Kenneth Moe, Brown Deer School District; Elliot Moeser, Nicolet School District

School Involved: Brown Deer School District and Nicolet High School

Location: Brown Deer and Glendale Wisconsin

Students in the Nicolet High School District are making beautiful music, thanks in part to technology in the classroom.

Symphonic band and music theory students use specialized software in their school's computers to write and edit musical compositions. Technology allows students to get immediate feedback by hearing how their compositions sound electronically. They can then manipulate and edit their work resulting in a "finely tuned" composition.

The newly restructured and expanded music classes have re-energized students and taught them to recognize their creative ability. Students have become independent learners in a risk-free, collaborative environment.

"In language arts, we teach students to read and interpret literature," says Nick White, music teacher and director of bands at Nicolet High School. "They must also have the skills to become creative writers. By using technology with the arts, we can not only create skilled performers but we can also encourage students to become composers and arrangers. They use technology to handle music in a direct way."

The program's successes are due in great measure to a collaboration between Nick White and Becky Kodet, technology coordinator for the Brown Deer School District. The two have worked on the project for over five years, stemming back to the time Kodet was computer coordinator at Nicolet.

While White has a keen interest in computer technology, Kodet is a pianist, composer and musician. By reaching across areas of specialty and school district boundaries, the educators eagerly share their experience and expertise with other disciplines and help students develop literacy beyond the languages.

Although the program is young, its impact on past, present and future students is already evident. While boarding a plane, Kodet and White recently bumped into a former student who remains an active vocal and instrumental composer at the college level. As part of their curriculum, present students perform full scores for the public. And, White often finds his fifth grade son's friends "writing" waltzes on the family's home computer.

When Kodet and White were notified of their selection as "Pioneering Partners," their response was predictable: "They're playing our song!"

Success with At-Risk Students: Thematic Teaching with Technology

Team Members: Barbara Spitz, Specialist - work phone: (608) 266-6459; David Hoon, Teacher; Joan Peebles, Administrator.

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District(s): Madison Metropolitan School District

Superintendent: Cheryl Wilhoyte

School Involved: School Age Parent Program

Location: Madison, Wisconsin

"We've had wonderful success with students who've never been successful before."

That review of Madison Metropolitan School District's alternative program for School Age Parents (SAPAR) is the opinion of Barbara Spitz, technology resource instructor of SAPAR.

The formula for its success is having students take charge of their own learning, while using computer technology in a thematic curricula.

At-risk and diverse individuals - pregnant and parenting teens - are referred to SAPAR as an alternative education program. Many of the students, whose ages range between 12 and 21, have had difficult childhoods, and now pregnancy and child-rearing further complicate their lives.

Working with teachers, students choose their own learning themes which are generally focused on real life situations. Teachers partner to ensure subject matter and skills fit objectives and then plan the curricula using networked computers as learning tools.

"Our most recent theme was social issues - more specifically, that students can make a difference socially," explained Barbara.

Students learned to pose good survey questions in English, to graph collected data using spreadsheets in math, to gather, organize and evaluate information in social studies, and present that information in a variety of ways. In each class, electronic resources and computer software was used to complete the work.

The technology-based innovation has changed teachers from information providers to "co-explorers" and mentors.

"The success of this approach has been tremendous," said Spitz. "The technology, combined with closer student/teacher relationships, has not only been more motivating, but it has also increased attendance, achievement and improved self-esteem."

Students are also realizing they can use their skills in very practical ways outside the classroom. Two of last year's SAPAR students started publishing their own neighborhood newspaper. The students also perform community services.

The program brings in about 50 community speakers each year from state legislators to adoption agency representatives and employment counselors.

Much like having a real job, each student leaves SAPAR with a better "resume." In this case, it's a portfolio of academic and classroom accomplishments. The package includes outcomes and projects completed, as well as teacher and self-evaluations. Students then return to high school or another alternative program until they graduate.

The restructured learning environment provided by SAPAR has evolved since 1984. Initial and ongoing computer funding came from the Eujue Foundation, a community-based philanthropy. Each year students and staff develop new ways to use technology as tools for learning.